

SECTION 1: GENERAL RECOMMENDATIONS/CARE

Concern	Care/Test	Frequency
General Recommendations/Care	♦ Perform diabetes-focused visit.....	<i>Type 1</i> *: Every 3 months <i>Type 2</i> *: Every 3 – 6 months * consider more often if A1c \geq 7.0% and/or complications exist
	♦ Review management plan, assess problems and goals...	Each focused visit; revise as needed
	♦ Assess physical activity	Each focused visit
	♦ Assess nutrition/weight/BMI/growth	Each focused visit

Diabetes mellitus is a serious disease that has a tremendous impact on the general health of people in Wisconsin. It is estimated that 329,000 adults in Wisconsin have diabetes. More than 94,000 of those people are unaware that they are living with diabetes. Both Type 1 diabetes and Type 2 diabetes can lead to devastating complications, such as blindness, end-stage renal disease, amputations, heart disease, and stroke. The major morbidity, mortality, and economic burden of diabetes is associated with complications of diabetes. The good news is that we now have a better understanding of diabetes and how to prevent or delay its complications, additional management strategies, and new medications to treat the disease. Prevention, early detection, and aggressive treatment can have a significant impact on the quality of life for people with diabetes.

Diabetes Health Care Team

The diabetes health care team includes a primary care provider who is responsible for ongoing care and has access to diabetes specialists and other health care professionals. The collaboration of this multidisciplinary team, which may include the expertise of cardiologists, counselors, dentists, dietitians, exercise physiologists, nephrologists, neurologists, nurse educators, ophthalmologists, optometrists, pharmacists, podiatrists, and social workers, is essential to good diabetes care. People with diabetes require a health care delivery system that provides high quality, patient-centered care on an ongoing basis and ensures that timely changes in treatment are made to achieve optimal diabetes control. Diabetes management for children and adolescents should be provided by health professionals with expertise in meeting their special medical, educational, nutritional, and behavioral needs. No single practitioner is expected to provide all of the care required by a person with diabetes. All providers, however, are in a unique position to deliver prevention messages, communicate the need for optimal glycemic control, reinforce periodic screening recommendations, and encourage a proactive approach to diabetes. Having a special interest and experience in taking care of people with diabetes are often beneficial. In areas where it is impractical to develop a multidisciplinary team, it may be beneficial to develop a system for ongoing consultation and/or making referrals for these essential services.

The Diabetes-Focused Visit and Frequency

A diabetes-focused visit is one that is regularly scheduled for the primary purpose of assessing diabetes care treatment goals, management plans, and problems that might be barriers to optimal control. Until treatment goals are achieved, standard care should be provided at least quarterly for people taking insulin and every three to six months for those not using insulin. The frequency of visits may also vary depending on the type of diabetes, blood glucose goals and outcomes, changes in treatment, and the presence of complications and/or other medical conditions.

Many people may have other conditions or concerns not related to diabetes; focusing entirely on diabetes may not be possible during a non-diabetes-related visit. Some providers are electing to use a diabetes checklist or flow sheet to assist them in outlining the essential components of diabetes care and may be useful for efficiently integrating diabetes care with other concerns during the non-diabetes-related visit.

At each diabetes-focused visit, an individual's plan of care may include the assessment or reassessment of all of the following components of diabetes care:

- Oral medications, insulin use, side effects, and frequency and severity of hypoglycemia.
- Self-monitoring of blood glucose (SMBG) data and most recent A1c level.
- Preventive exams (e.g., dilated eye exam, comprehensive foot exam, oral/dental screening, and any other preventive exams for general health).
- Blood pressure control and lipid management.
- Nutrition needs, physical activity status, and weight/body mass index/growth.
- Current self-care management skills, needs, and barriers.
- Lifestyle modifications.
- Psychosocial concerns (i.e., screening for depression).
- Potential referrals to other team members and scheduled follow-up with primary care provider.

Personal goals need to be realistic and obtainable. Evaluation of an individual's treatment/management plan may be measured by the following: SMBG data, A1c level, lipid levels, body weight, body mass index, blood pressure control, self-reported quality of life, the absence of complications, and the reduced need for emergency services.

Management Plan

The management goal for diabetes is to achieve optimal glycemic control to prevent acute and chronic complications. The management of diabetes is enhanced by all of the following practice tools:

- Practice Guidelines that are readily available in the chart and/or exam rooms.
- Checklists or flow sheets based on these Guidelines, placed in the medical record and updated at each visit.
- Registries, either manual or as a part of an electronic medical record, to track people with diabetes.
- Automated reminder systems for clinicians and people with diabetes to stimulate the timely performance or recommended care components.
- Case management services.

Physical Activity

Physical activity is essential for good diabetes control. Benefits of regular physical activity include improved glucose control, increased insulin sensitivity, decreased cardiovascular risk factors (e.g., hypertension and hyperlipidemia), more effective weight management, improved physical endurance, and reduced stress. Unless contraindicated, physical activity is recommended on a regular basis. The Diabetes Prevention Program recommends a minimum of 150 minutes of physical activity per week. A safe physical activity prescription should be based on medical evaluation and include individualized guidelines. Evaluation for any underlying complications affecting the eyes, heart and blood vessels, kidney, or nervous system prior to

initiation of any physical activity program is recommended. Information on the criteria for stress testing in diabetes is found in Section 5: Cardiovascular Care.

Nutrition/Weight/Body Mass Index/Growth

Medical nutrition therapy must be individualized to achieve specific metabolic goals and optimal nutrition. Adequate calories should be provided to facilitate normal growth and development for children and adolescents. Weight loss in overweight and obese people with diabetes can improve both hypertension and blood glucose control. Modest calorie restriction and modification in eating habits, physical activity, and ongoing support can help people achieve weight loss. It is important for adults and children to be weighed at each visit and to have periodic assessments of body mass index (BMI). Current BMI charts are not appropriate for frail or sedentary elderly individuals, women who are pregnant or lactating, or competitive athletes and body builders. Referrals to dietitians, diabetes educators, physical therapists, and/or exercise physiologists may assist people in achieving physical activity, nutrition, and weight management goals.

Body Mass Index – Adults

Body mass index (BMI) has become the gold standard to assess overweight and obesity and to estimate the relative risk of disease due to excess weight. National obesity guidelines also recommend measurement of waist circumference to assess abdominal fat content as part of an obesity assessment. Evidence from epidemiological studies indicates that a high waist circumference is associated with an increased risk of Type 2 diabetes, dyslipidemia, hypertension, and cardiovascular disease.

For adults, a BMI of ≥ 25 kg/m² indicates overweight and ≥ 30 kg/m² indicates obesity. BMI values apply to both men and women, regardless of age, frame, size, or muscle mass. Values do not apply to athletes and body builders, pregnant and nursing women, and frail, elderly people.

For adults with a BMI of 25-34.9 kg/m², sex-specific waist circumference cut-offs should be used in conjunction with BMI to identify increased disease risks. Risk is increased with a waist circumference of > 35 inches in women and > 40 inches in men.

Growth Charts and Body Mass Index-for-Age for Children and Adolescents

The Centers for Disease Control and Prevention has published new weight-for-stature and BMI-for-age charts for children and adolescents that are available through the Internet at: <http://www.cdc.gov/growthcharts>. The BMI-for-age charts and instructions are available at <http://www.cdc.gov/nccdphp/dnpa/bmi/bmi-for-age.htm>. Charts are available for:

- Infants, birth to 36 months:
 - 1) Length-for-age and Weight-for-height
 - 2) Head circumference-for-age and Weight for length
- Children and adolescents, 2 to 20 years
 - 3) Stature-for-age and Weight-for-age
 - 4) BMI-for-age
- Preschoolers, 2 to 5 years
 - 5) Weight-for-stature

For young children (age ≥ 2 years) who are under 48 inches tall, either weight-for-stature or BMI can be used. For children over 48 inches tall and up to age 20 years, BMI needs to be used. The BMI charts factor in the child's age. As children grow, their body fatness changes over time. In addition, girls and boys differ in their body fatness as they mature. Plot BMI-for-age according to the sex-specific charts.

The following established cut-off points may indicate a health risk in children 2 to 20 years of age. In these cases, further medical assessment (including diet, physical activity, and laboratory measures) is recommended.

Underweight	BMI-for-age $\leq 5^{\text{th}}$ percentile
At risk for overweight	BMI-for-age $\geq 85^{\text{th}}$ to $< 95^{\text{th}}$ percentile
Overweight	BMI-for-age $\geq 95^{\text{th}}$ percentile

Coordination of Care

Referrals to specialty services for co-management and consultation should be made in a timely manner and as needed. Ongoing communication among all professionals involved in treating the person with diabetes is essential to maximizing diabetes control.

Essential Patient Education

Diabetes self-management education and care is a continually evolving process that has the potential to significantly impact the quality of life of people with diabetes. Educational strategies should take into consideration special educational or cultural needs and literacy level/skill, while respecting the individual's willingness to change behavior. Education may include, but is not limited to, the following:

- Explain that diabetes mellitus is a serious yet controllable disease.
- Explain that early detection, intervention, and treatment is crucial; many complications of diabetes can be prevented and progression of complications can be slowed.
- Discuss the importance of scheduled diabetes-related visits and routine preventive care.
- Discuss the importance of referrals for routine dental care, preventive foot care and treatment, dilated eye exams, and other specialty care to comprehensive, quality diabetes management and care.
- Explain that even small lifestyle modifications can greatly impact diabetes control.
- Explain that goals determined jointly by the person with diabetes and the primary care provider are essential to the achievement of positive outcomes.
- Explain that encouragement and support for self-management is available and advisable.

Helpful Tools Included in This Section

- Body Mass Index (BMI) Table for Adults
- Growth Chart: Boys Body Mass Index-for-age Percentiles, 2 to 20 Years
- Growth Chart: Girls Body Mass Index-for-age Percentiles, 2 to 20 Years

Additional Resources

- 1) On-line BMI calculators. Web sites located at: <http://nhlbisupport.com/bmi/bmicalc.htm> or <http://www.cdc.gov/nccdphp/dnpa/bmi/calc-bmi.htm>.
- 2) BMI chart for adults. Web site located at: http://www.nhlbi.nih.gov/guidelines/obesity/bmi_tbl.htm.

General Recommendations – Question and Answer

Q: Do these Guidelines imply the frequency of visits that must be made for all people with diabetes or is it up to the organization or judgment of the provider? Is there any flexibility for people who are in good glycemic control?

A: The Guidelines are intended to provide guidance and support for providers of care. They are based on available literature and good practice standards and are intended to ensure that people with diabetes receive appropriate care, to reduce both the need for emergency care and the risk of chronic complications of the disease. Quarterly “dedicated” diabetes visits to assess glycemic control and complications are recommended. More frequent visits should be maintained for those using insulin, for those whose control is less than optimal, and for those whose degree of progression of complications warrants more in-depth assessment and treatment. For those people who have minimal medication requirements and who maintain excellent glycemic control ($A1c < 7.0\%$), visits can be reduced to every 4 to 6 months at the discretion of the provider.

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BODY MASS INDEX (BMI) TABLE FOR ADULTS

To use this table, find the appropriate height in the left-hand column. Move across to a given weight. The number at the top of the column is the BMI at the height and weight. Pounds have been rounded off.

BMI	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Height	<i>Weight (in pounds)</i>																										
4'10" (58")	91	96	100	105	110	115	119	124	129	134	138	143	148	153	158	162	167	172	177	181	186	191	196	201	205	210	215
4'11" (59")	94	99	104	109	114	119	124	128	133	138	143	148	153	158	163	168	173	178	183	188	193	198	203	208	212	217	222
5' (60")	97	102	107	112	118	123	128	133	138	143	148	153	158	163	168	174	179	184	189	194	199	204	209	215	220	225	230
5'1" (61")	100	106	111	116	122	127	132	137	143	148	153	158	164	169	174	180	185	190	195	201	206	211	217	222	227	232	238
5'2" (62")	104	109	115	120	126	131	136	142	147	153	158	164	169	175	180	186	191	196	202	207	213	218	224	229	235	240	246
5'3" (63")	107	113	118	124	130	135	141	146	152	158	163	169	175	180	186	191	197	203	208	214	220	225	231	237	242	248	254
5'4" (64")	110	116	122	128	134	140	145	151	157	163	169	174	180	186	192	197	204	209	215	221	227	232	238	244	250	256	262
5'5" (65")	114	120	126	132	138	144	150	156	162	168	174	180	186	192	198	204	210	216	222	228	234	240	246	252	258	264	270
5'6" (66")	118	124	130	136	142	148	155	161	167	173	179	186	192	198	204	210	216	223	229	235	241	247	253	260	266	272	278
5'7" (67")	121	127	134	140	146	153	159	166	172	178	185	191	198	204	211	217	223	230	236	242	249	255	261	268	274	280	287
5'8" (68")	125	131	138	144	151	158	164	171	177	184	190	197	203	210	216	223	230	236	243	249	256	262	269	276	282	289	295
5'9" (69")	128	135	142	149	155	162	169	176	182	189	196	203	209	216	223	230	236	243	250	257	263	270	277	284	291	297	304
5'10" (70")	132	139	146	153	160	167	174	181	188	195	202	209	216	222	229	236	243	250	257	264	271	278	285	292	299	306	313
5'11" (71")	136	143	150	157	165	172	179	186	193	200	208	215	222	229	236	243	250	257	265	272	279	286	293	301	308	315	322
6' (72")	140	147	154	162	169	177	184	191	199	206	213	221	228	235	242	250	258	265	272	279	287	294	302	309	316	324	331
6'1" (73")	144	151	159	166	174	182	189	197	204	212	219	227	235	242	250	257	265	272	280	288	295	302	310	318	325	333	340
6'2" (74")	148	155	163	171	179	186	194	202	210	218	225	233	241	249	256	264	272	280	287	295	303	311	319	326	334	342	350
6'3" (75")	152	160	168	176	184	192	200	208	216	224	232	240	248	256	264	272	279	287	295	303	311	319	327	335	343	351	359
6'4" (76")	156	164	172	180	189	197	205	213	221	230	238	246	254	263	271	279	287	295	304	312	320	328	336	344	353	361	369

Source: Evidence Report of Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults, 1998. NIH/National Heart, Lung, and Blood Institute (NHLBI). http://www.nhlbi.nih.gov/guidelines/obesity/bmi_tbl.htm

BMI \geq 25.0 kg/m² indicates OVERWEIGHT
 BMI \geq 30.0 kg/m² indicates OBESITY

To calculate an adult BMI outside the range of the above chart, use one of the following formulas:
 a) weight in pounds \div height in inches \div height in inches \times 703 = BMI
 b) weight in kilograms \div height in meters \div height in meters = BMI

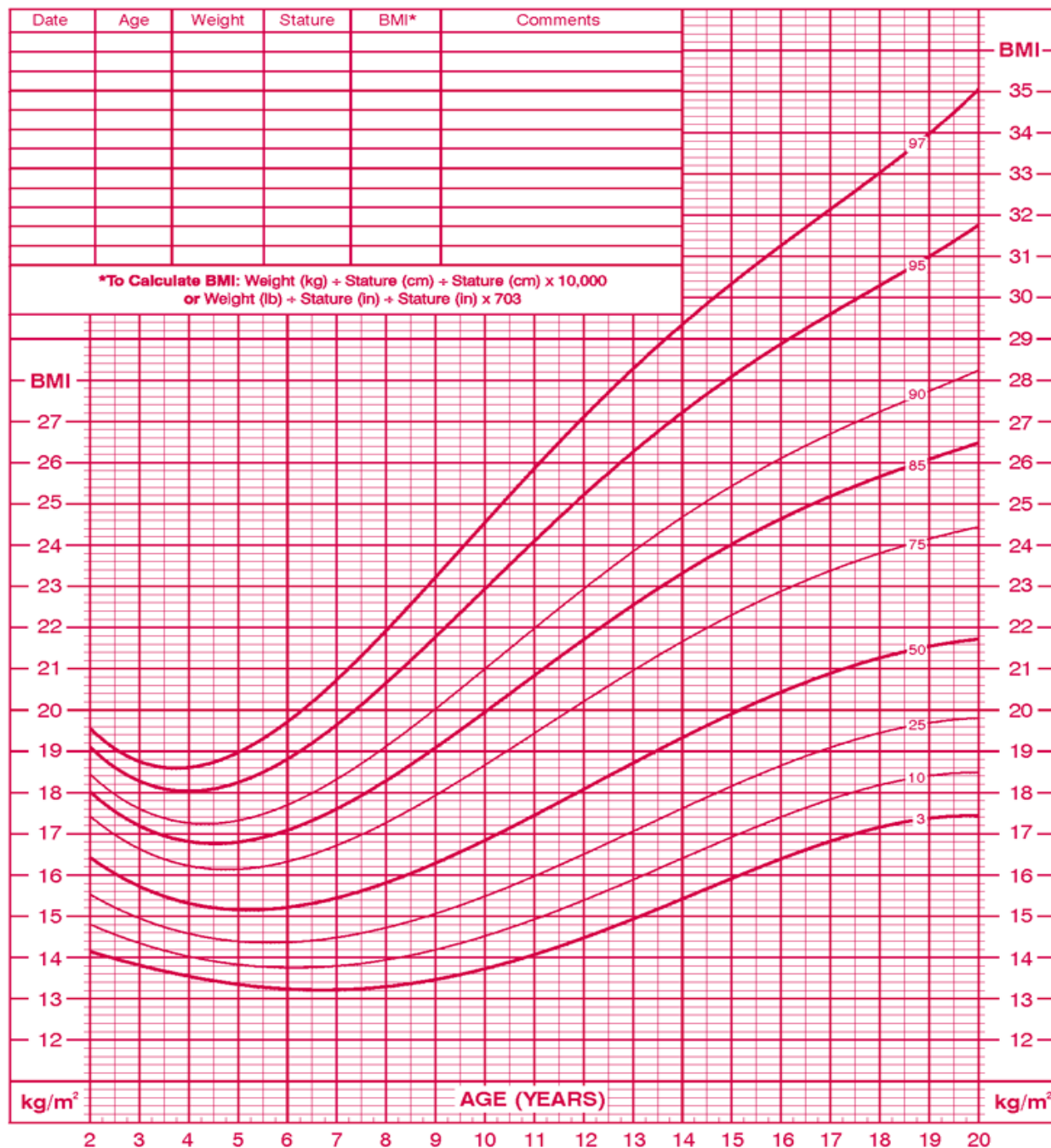
GROWTH CHART: GIRLS BODY MASS INDEX-FOR-AGE PERCENTILES, 2 TO 20 YEARS

2 to 20 years: Girls

Body mass index-for-age percentiles

NAME _____

RECORD # _____



Published May 30, 2000 (modified 10/16/00).

SOURCE: Developed by the National Center for Health Statistics in collaboration with the National Center for Chronic Disease Prevention and Health Promotion (2000).
<http://www.cdc.gov/growthcharts>



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